

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in or relating to Honing Clamps for Chisels and the like

We, JAMES NEILL & COMPANY (SHEFFIELD) LIMITED, a British Company, of Napier Street, Sheffield, 11, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to honing clamps for chisels, plane irons, and like blades having a cutting edge across an end, of the type in which rolling support is provided on the underside of the body of the clamp to which the blade is clamped, to enable the clamp and blade to be moved to and fro lengthwise of a hone.

According to the present invention, a honing clamp comprises two clamping members, with inwardly facing surfaces provided one on each member to engage the sides of a blade to be honed, and the members being guided and adjustable laterally to vary the distance between those surfaces, and means for tightening the members on to a blade placed between the surfaces in any adjusted position of the members, the device also providing support for the undersurface of the blade to be clamped by the surfaces, and rolling support being provided on the underside of the device.

More than two inwardly facing surfaces may be provided by the two clamping members, with one pair at a lower level than another pair and approaching nearer to each other than the other pair to engage blades in a width range less than that covered by the other pair. As will be shown below, three pairs of surfaces can be provided to cover between them a very wide range of blade widths, from the very narrowest upwards.

Each of a pair of surfaces amounts to the riser of a step on the tread of which the

underside of the blade is supported. Preferably the risers are undercut to urge the blade to that supporting tread when the clamping members are tightened.

Preferably, one surface of each pair is convex to bear on one side edge of the blade, the other surface being straight to receive the other side edge, which is pressed squarely to it by the action of the curved surface, whether the side edges are parallel to each other or tapered.

The lateral guiding of the two clamping members may be effected by a pair of pins projecting inwardly from one member and passing through parallel holes in the other.

The lateral adjustment of the two clamping members may be effected by transverse screw means below the level occupied by the inwardly facing clamping surfaces. Thus, a screw with right-hand and left-hand threaded portions may pass through correspondingly threaded aligned holes in lugs at the underside of the respective clamping members, which thus move in opposite directions along the screw when the latter is rotated.

Conveniently, the rolling support is provided centrally at the underside of the device. Thus, with a right- and left-hand screw as indicated above, a single roller may rotate on the screw between the portions with the different threads, so that the roller remains central, whatever the relative positions of the clamping members.

The clamping of a blade being by its side edges, with support provided for its undersurface, the upper part of the device in use is clear of obstruction for the one hand of the user that controls the pressure of the cutting edge on the hone.

A preferred embodiment of the invention will now be described in greater detail by

way of example with reference to the accompanying drawings in which:—

Figure 1 is a front elevation of the assembled honing clamp;

5 Figure 2 is an end elevation of the right-hand end of Figure 1;

Figure 3 is a plan of Figure 1;

10 Figure 4 is an end elevation of the left-hand end of Figure 1, showing the clamp in its position of use, with a blade ready for honing; and

Figure 5 is an enlarged section on the line 5—5 of Figure 3.

15 A screw 1 has portions 2, 3 with right-hand and left-hand threads respectively, separated by a plain portion 4, the diameter of which is at least as great as the crest diameter of the threaded portions, with necks 5 at each end of it for circlips 6 to retain a roller 7 on the journal provided by the plain portion. An end 8 of the screw has a head 9 fastened to it by means of a pin 10. The head is both knurled and slotted for rotation by the fingers or a screwdriver or the like.

25 Clamping members 11A, 11B with downward lugs having appropriately threaded holes 12A, 12B fit on to the respective portions 2, 3 of the screw 1. Parallel to the screw and to upper support faces 13, 14 and 15 of the clamping members 11A, 11B two pins 16 forced into holes in and projecting inwardly from the member 11B fit slidably in parallel holes 17 in the member 11A, so that the two members are guided when they are moved in opposite directions by rotation of screw. Whatever their adjusted positions, the members 11A, 11B are always symmetrical with respect to the roller 7.

35 The inner face of each clamping member comprises two complete shallow steps, the upper pair of steps to receive the widest range of blade widths, and the next an intermediate range, a blade A (Figure 4) supported on one or other pair of "treads" 14 or 15 being gripped between a corresponding pair of "risers" 18 or 19. In addition, the two guide pins 16 provide a support for blades in the narrowest range, which are gripped between a further pair of "risers" 40 formed by the faces 20 of the clamping members that are nearest to each other. All three inwardly facing surfaces 18, 19, 20 provided by "risers" on the clamping member 11B are convex in plan as shown in Figure 3, but those on the member 11A are straight. The two upper risers 18 and 19 on both members are undercut, so that wide or fairly wide blades are urged down to the surfaces 14 or 15. This downward urge is not of any great consequence as regards the clamping of the narrowest blades by the lowest risers 20, which therefore need not be undercut.

65 The broken lines in Figure 5 show the nearest approach of the members 11A, 11B

to each other, i.e., when the surfaces 20 meet. The outer surfaces 21 of the clamping members are concave in plan as shown in Figure 3 for more comfortable holding by the fingers and thumb of one hand of the user, applied to impart desirable pressure to a blade A clamped between the appropriate pair of "risers" and projecting beyond the clamp by such a distance that the undersurface of the blade is presented at the required angle to the surface of a hone B (Figure 4)—the angle being a direct function of the vertical distance from the undersurface of the particular blade to the contact position of the periphery of the roller 7 with the hone, and of the distance between this contact point and the cutting edge of the blade. As the device together with the blade is moved to and fro along the hone, the roller 7 rotates freely between the circlips 6 on the journal 4 provided at the centre of the screw 1.

WHAT WE CLAIM IS:—

1. A honing clamp comprising two clamping members, with inwardly facing surfaces provided one on each member to engage the sides of a blade to be honed, and the members being guided and adjustable laterally to vary the distance between these surfaces, and means for tightening the members on to a blade placed between the surfaces in any adjusted position of the members, the device also providing support for the undersurface of the blade to be clamped by the surfaces, and rolling support being provided on the underside of the device.

2. A honing clamp as in Claim 1, wherein more than two inwardly facing surfaces are provided by the clamping members, with one pair at a lower level than another pair and approaching nearer to each other than the other pair to engage blades in a width range less than that covered by the other pair.

3. A honing clamp as in Claim 1 or Claim 2, wherein the inwardly facing surfaces are undercut.

4. A honing clamp as in any of Claims 1 to 3, wherein one surface of each pair of inwardly facing surfaces is convex.

5. A honing clamp as in any of Claims 1 to 4, wherein guiding of the two clamping members is effected by a pair of pins projecting inwardly from one member and passing through parallel holes in the other.

6. A honing clamp as in any of Claims 1 to 5, wherein lateral adjustment of the clamping members is effected by transverse screw means below the level occupied by the inwardly facing clamping surfaces.

7. A honing clamp as in Claim 6, wherein a transverse screw has portions with right-hand and left-hand threads to pass through correspondingly threaded aligned holes in lugs at the underside of the respective clamping members.

8. A honing clamp as in any of Claims 1 130

to 7, wherein the rolling support is provided centrally at the underside of the device.

9. A honing clamp as in Claims 6 and 7,
5 comprising a single supporting roller rotatable on the screw between the portions with different threads.

10. A honing clamp substantially as hereinbefore described with reference to the accompanying drawings.

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COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of
the Original on a reduced scale